

City of Alexandria, Virginia

Long Term Control Plan Update

Progress Update Meeting
June 23, 2016



ECO-CITY  **ALEXANDRIA**

City of Alexandria, Virginia

AGENDA

- ☐ Public Process Summary
- ☐ LTCPU Plan Highlights
 - ☐ CSO-003/004 Infrastructure
 - ☐ CSO-002 Infrastructure
 - ☐ Complementary Strategies
 - ☐ CSO-001 Strategy
- ☐ Implementation Schedule and Cost
- ☐ Post Construction Monitoring
- ☐ Coordination with AlexRenew
- ☐ Timeline for Approval

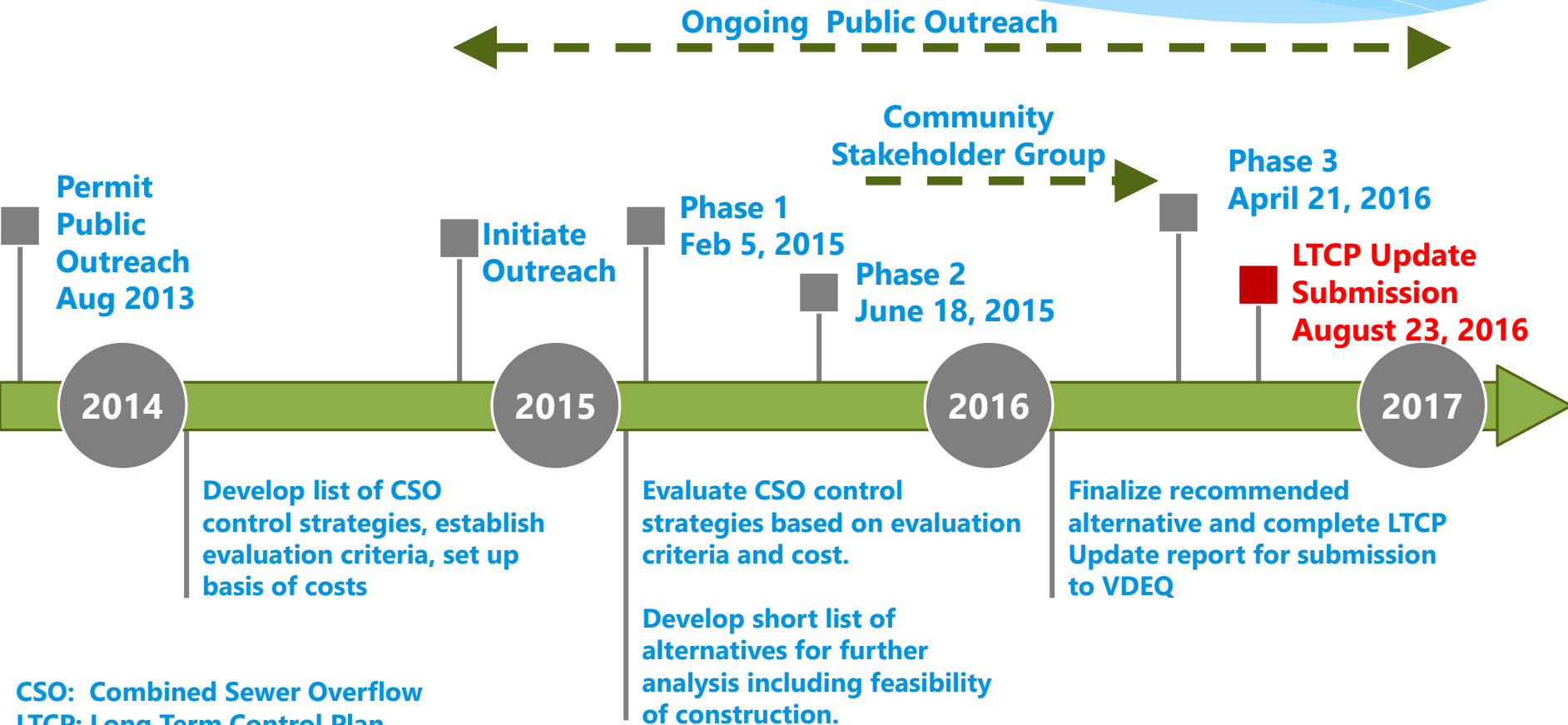


City of Alexandria, Virginia

Public Process Summary



Planning Timeline



CSO: Combined Sewer Overflow
LTCP: Long Term Control Plan

VDEQ: Virginia Department of Environmental Quality

Public Outreach

Date	Audience	Date	Audience
8/5/2013	Public Meeting (through EPC)	2/11/2015	Old Town Civic Association
10/30/2013	Federation of Civic Associations	3/18/2015	NorthEast Citizens' Association
11/13/2013	Old Town Civic Association	5/19/2015	Waterfront Commission
11/14/2013	West Old Town Citizens Association	5/26/2015	City Council Work Session
1/28/2014	City Council Work Session	6/11/2015	West Old Town Citizens Association
5/19/2014	Environmental Policy Commission	6/18/2015	LTCPU Phase II Public Meeting
9/18/2014	Porto Vecchio Condominium Association	10/7/2015	CSS Stakeholder Meeting #1
10/21/2014	AlexRenew Board	11/2/2015	CSS Stakeholder Meeting #2
10/27/2014	Agenda Alexandria	1/7/2016	CSS Stakeholder Meeting #3
1/27/2015	City Council Legislative Session	2/4/2016	CSS Stakeholder Meeting #4
1/28/2015	Federation of Civic Associations	3/3/2016	CSS Stakeholder Meeting #5
2/2/2015	Environmental Policy Commission	3/8/2016	City Council Work Session
2/5/2015	LTCPU Phase I Public Meeting	4/7/2016	CSS Stakeholder Meeting #6
2/11/2015	Old Town Civic Association	4/21/2016	LTCPU Phase III Public Meeting
3/18/2015	NorthEast Citizens' Association	5/10/2016	City Council Work Session
5/18/2015	Environmental Policy Commission	5/14/2016	City Council Public Hearing

Outreach Groups

- * Local Civic Associations
- * Public Meetings
 - 3 meetings, only 2 required by CSS Permit
- * City Council
 - Progress Updates and Public Hearing
- * Technical Review Panel
 - Panel meetings held May 2015 and March 2016
- * Ad Hoc Combined Sewer System Plan Stakeholder Group
 - 6 meetings during development of LTCPU
- * CSS Website
 - Email and AlexEngage survey
- * Others
 - Environmental Policy Commission
 - Alexandria Renew Enterprises

- * Feedback considered for incorporation into final LTPCU document

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LTCPU Plan Highlights



Long Term Control Plan Update Overall Framework



CSO-003/004

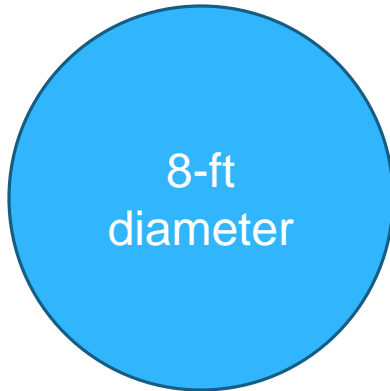
Primary Strategy

- * 1.6 million gallon storage tunnel (10-ft diameter)
- * Shafts range in diameter from 20-ft to 30-ft
- * Shafts and tunnel range in depth from 60-ft to 100-ft
- * 4-6 overflows per year in the typical year (preliminary engineering indicates 3)
- * Assess goals using CSS modeling for typical year

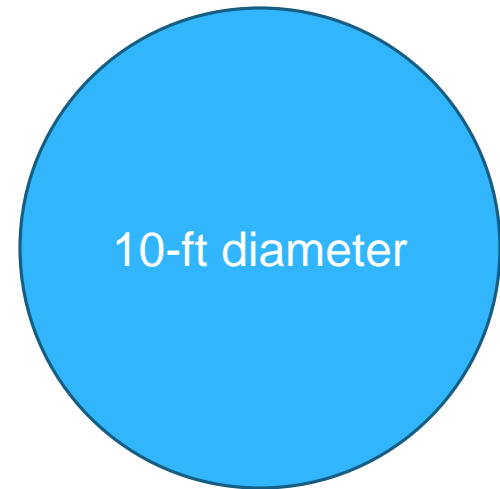


CSO-003/004 Tunnel Sizes

- * 8-foot diameter tunnel meets the regulatory requirement of 4-6 overflows/year (typical year)
- * Based on feedback received, 10-ft tunnel implemented in LTCPU (60% larger)



CSO-003/004 - 1 MG



CSO-003/004 – 1.6 MG

CSO-002 Primary Strategy

- * 3.0 million gallon storage tank
- * 4-6 overflows per year in the typical year (preliminary engineering indicates 2)
- * All tank alternatives remain available
- * Reassess following construction of CSO-003/004 tunnel
- * Assess goals using CSS modeling for typical year



CSO-002 Tanks



CSO-002 Tank Alternative 1



CSO-002 Tank Alternative 3

CSO-002 Tank Sizes

- * 2 MG tank meets the regulatory requirement of 4-6 overflows/year (typical year)
- * Based on feedback received, 3.0 MG tank implemented in LTCPU (50% larger)



105'Lx150'Wx25'D



130'Lx130'Wx25'D

MG = million gallon; L = Length, W = Width, D - Depth

Green Infrastructure (Complementary Strategy)

- * Implement the program citywide, not just combined sewer area
- * **\$1-2 million** for implementation of project in next permit cycle (2018-2023) in Capital Improvement Program
- * Evaluate increasing number of street trees (tree canopy) in combined sewer system
- * Assess effectiveness and based on assessment, consider establishing program and target goals for future permit cycles



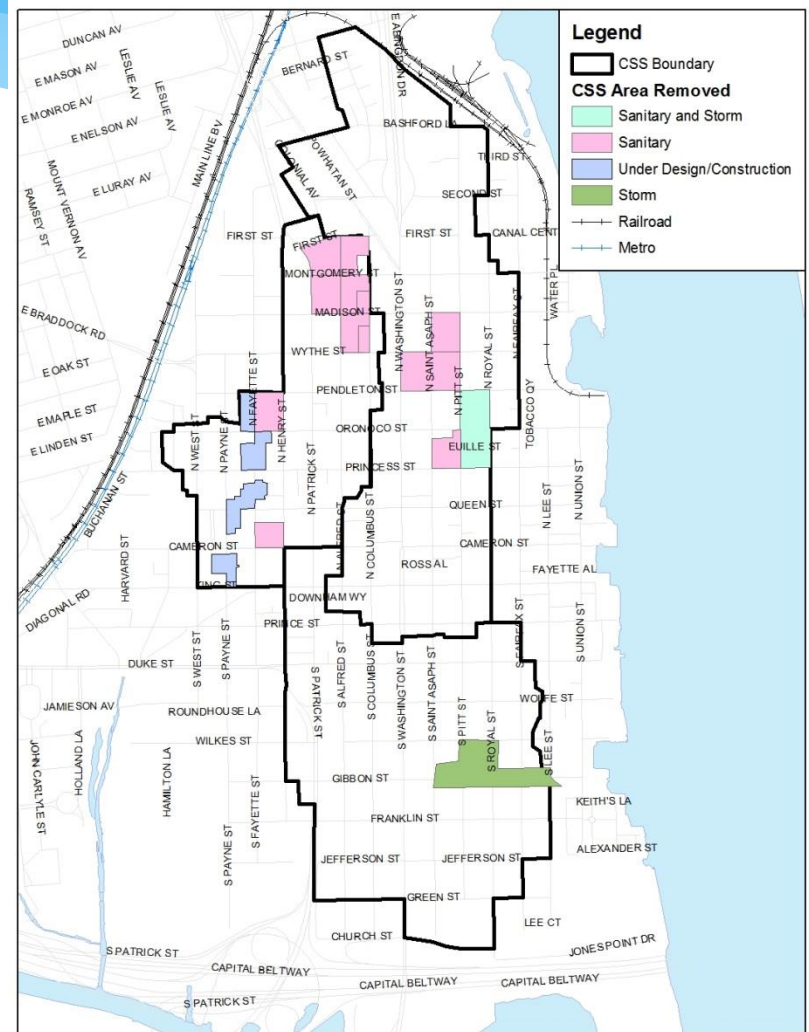
Targeted Sewer Separation (Complementary Strategy)

* Targeted Sewer Separation

- Condition of redevelopment
- Example: ABC/Giant project
 - Onsite sanitary separation
 - Offsite sanitary separation of 173-room hotel
- Some City-led projects

* Other Potential Opportunities

- Real time controls
- Low flow fixtures
- Downspout disconnects

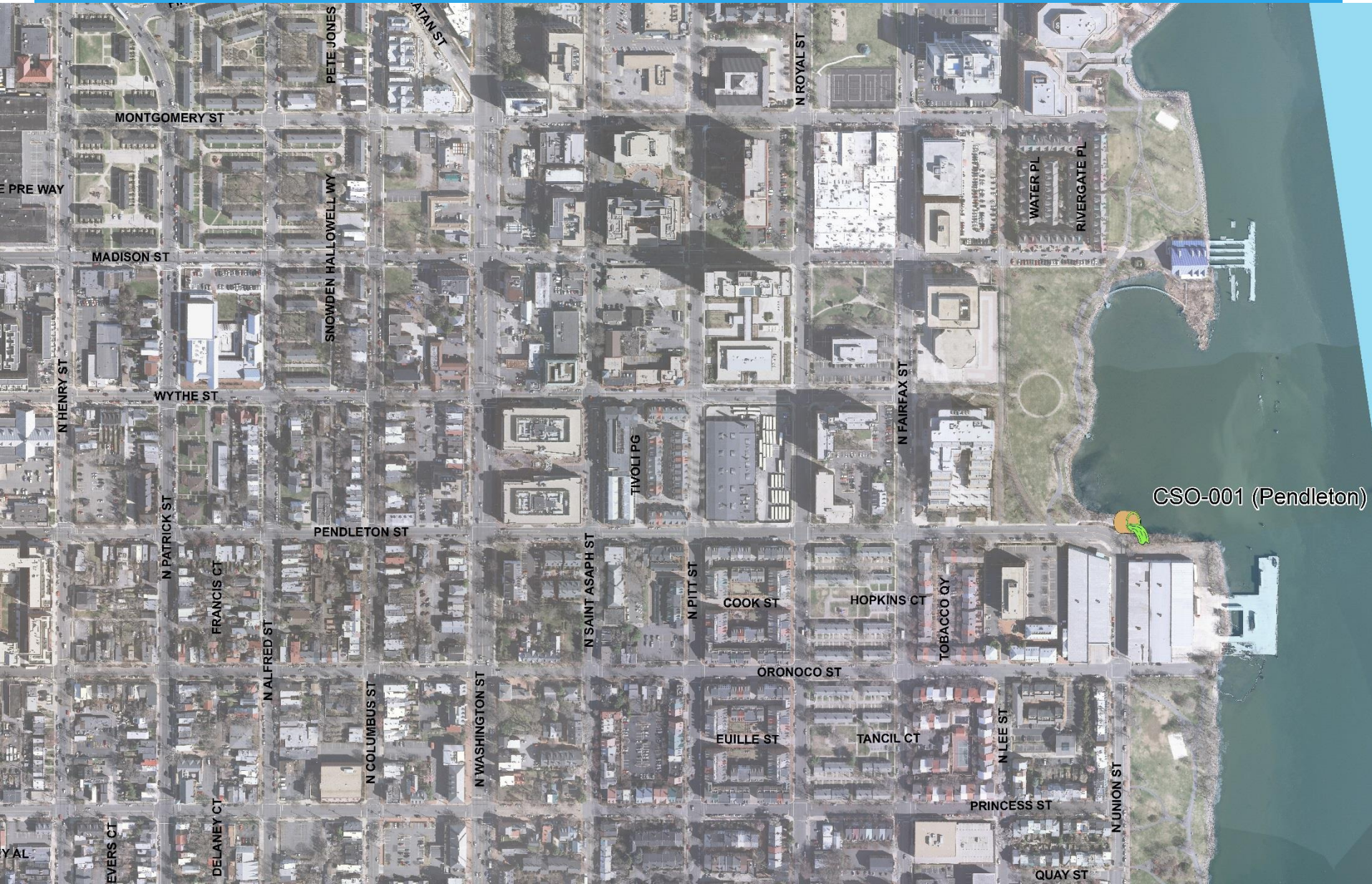


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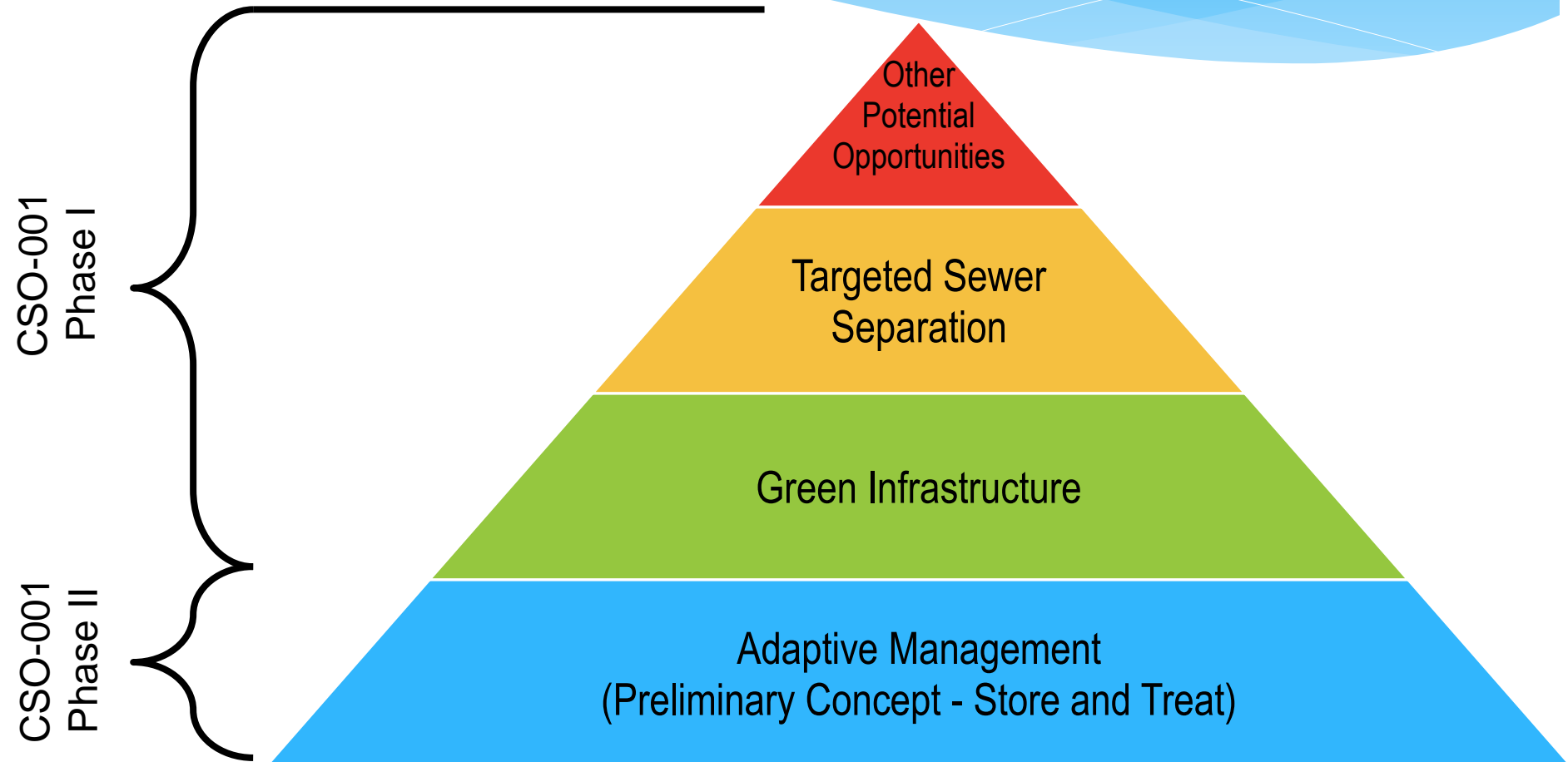
CSO-001 Strategy



CSO-001 Orientation



Proposed Framework for CSO-001



Proposed Framework for CSO-001

* **CSO-001 Phase I**

- **Enhanced sewer separation and green infrastructure opportunities**
 - Coordinate with North Old Town Small Area Plan implementation

* **CSO-001 Phase II**

- Assess following CSO-001 Phase I and CSO-002/003/004 Projects
- Implement a plan consistent with the current regulatory requirements (potentially a store and treat strategy)

Old Town North Small Area Plan / Eco-City District

FUTURE POTENTIAL SITES

1. NRG-PRGS
2. Crowne Plaza Hotel
3. Foreign Car Service
4. Metro Stage
5. 801 N. Fairfax/209 Madison

REQUESTS FOR PROPOSALS

6. WMATA Bus Barn
7. ARHA Properties

PENDING APPLICATIONS

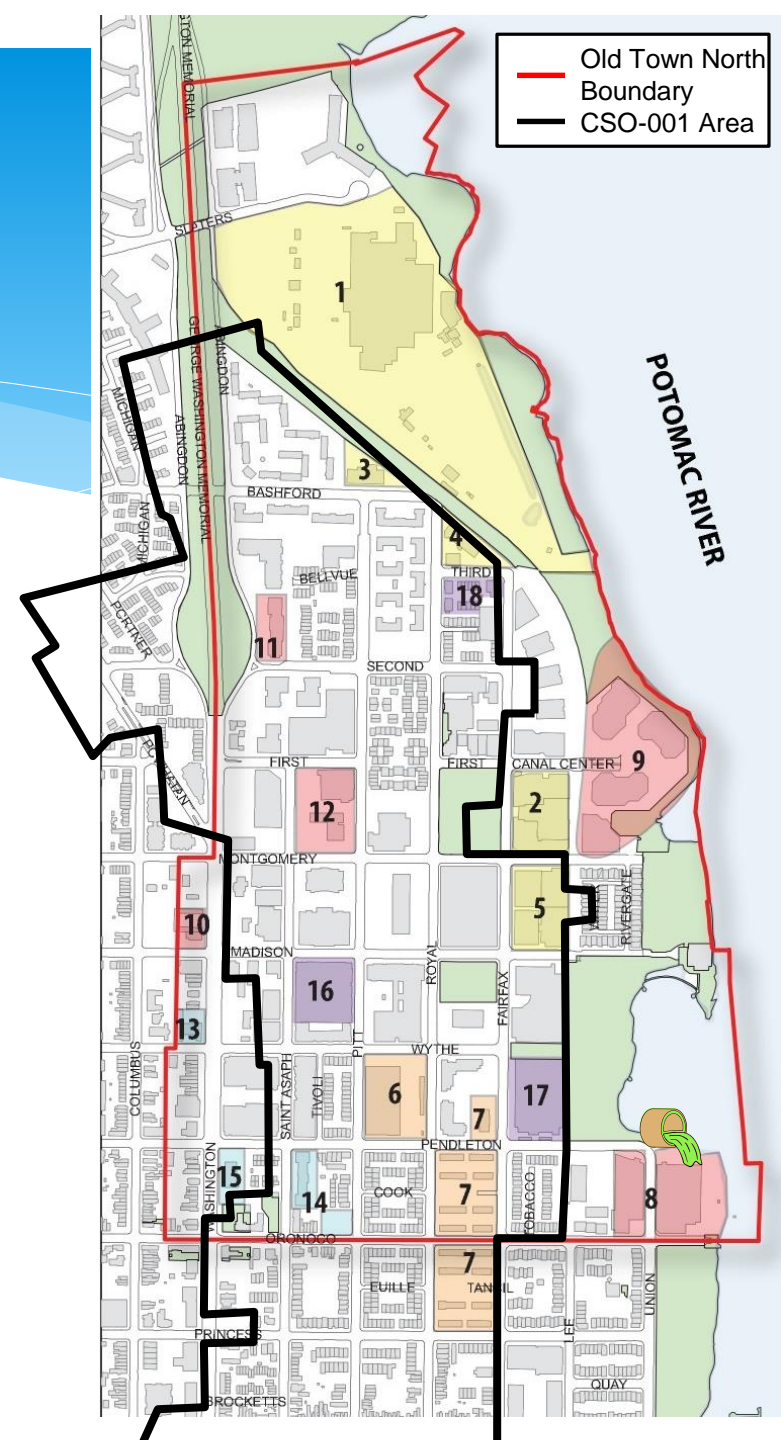
8. Robinson Terminal North
9. Canal Center - Public Improvements/Flood proofing
10. 800 - 802 N. Washington (Towne Motel)
11. Old Colony Inn
12. ABC/Giant

APPROVED & UNDER CONSTRUCTION

13. 700 N. Washington
14. Health Department
15. Cotton Factory (The Mill)

RECENTLY CONSTRUCTED

16. Harris Teeter/ The Kingsley
17. The Oronoco
18. Printers Row



Long Term Control Plan Update Framework

- * For the typical rainfall year
 - Reduce number of overflows by over 90%
 - Reduce volume of overflows by over 90%
 - Capture and treatment of over 95% of the total combined sewage
- * Substantial water quality improvements other than bacteria
 - Reduction of nitrogen, phosphorous and sediment into the Chesapeake Bay
 - Reduction in floatables
- * Phased approach – facilitates sequential implementation while managing rate increases
- * Consistent with Eco-City goals
- * Addresses regulatory requirements for approval by VDEQ
- * Supported by the CSS Stakeholder Group, City Council and AlexRenew

LTCPU Language

Performance Goals

* CSO-003/004 Storage Tunnel

- “[The operation of the tunnel] *will achieve the presumption approach level of control (4-6 overflows per year¹) and together with GI and Targeted Sewer Separation will achieve consistency with the Hunting Creek TMDL.*”

* CSO-002 Storage Tank

- “*With 3.0 million gallons of storage it is anticipated that overflows from CSO-002 will achieve the presumption approach level of control (4-6 overflows per year¹) and together with GI and Targeted Sewer Separation will achieve consistency with the Hunting Creek TMDL.*”

1. “*The City’s preliminary engineering indicates an expectation of having 4 or fewer overflows per year; however the presumption approach criteria allows for no more than 4-6 overflows per year during the typical year.*”

LTCPU Language

Flexibility/Adaptive Management

- * Project Phasing
- * Optimization
- * Real Time Controls
- * Unknowns

Implementation Schedule



Long Term Control Plan Update Framework through 2035

- * CSO 003/004 tunnel to be implemented first (approximate timeframe 2018-2025)
- * CSO 002 tank to be implemented following completion of CSO 003/004 tunnel (2023-2032)
- * Green infrastructure and targeted sewer separation between 2016-2035, includes CSO-001 Phase I
- * Assessment for CSO-001 2032-2035

Preliminary Capital Costs

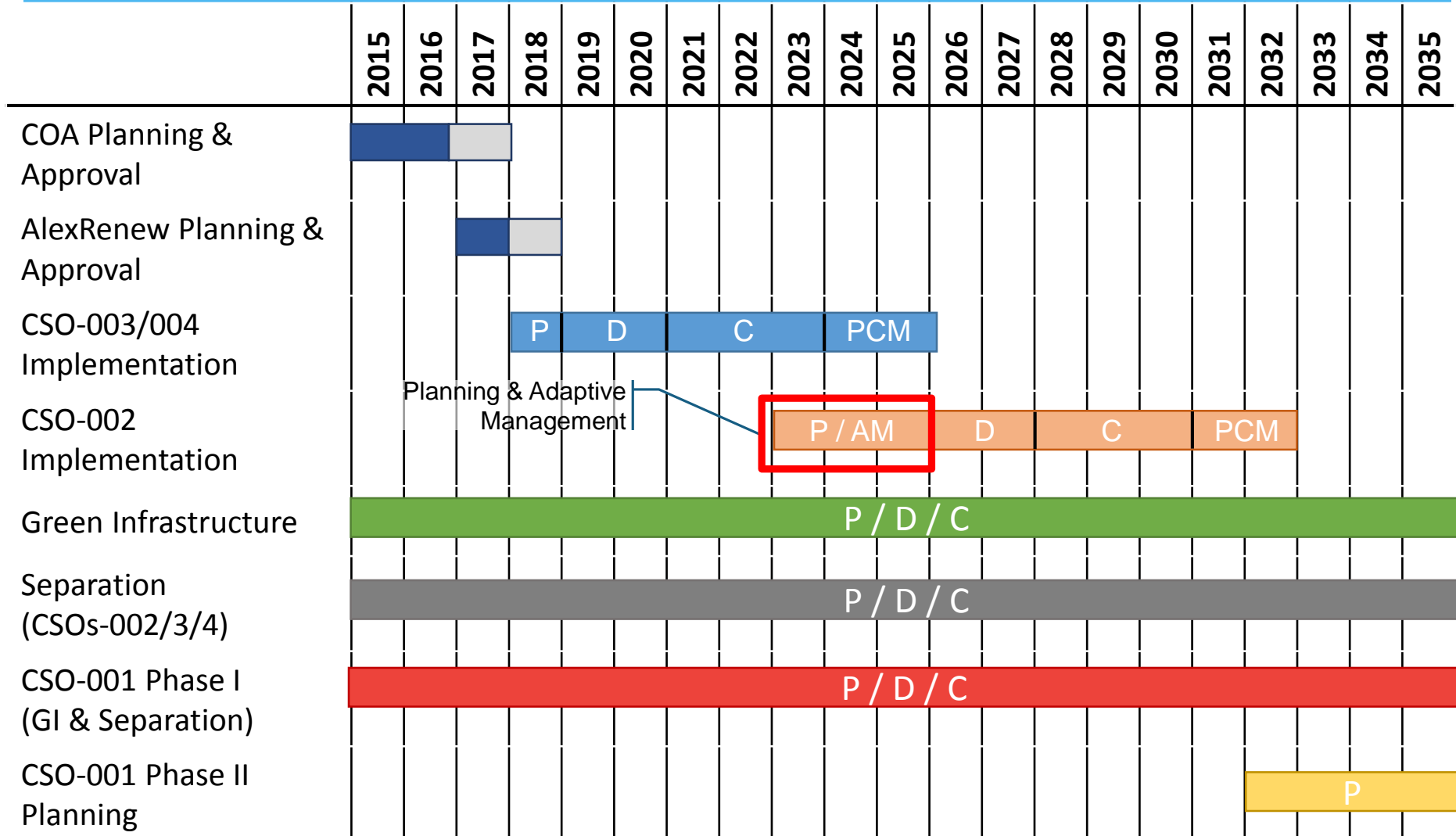
Project	Capital Cost ¹
CSO 003/004 Tunnel	\$80-120 million
CSO 002 Tank	\$35-53 million
Green Infrastructure	\$5-7.5 million
Targeted Sewer Separation	\$5-7.5 million
TOTAL	\$125 - 188 million

¹Capital Costs in 2015 dollars

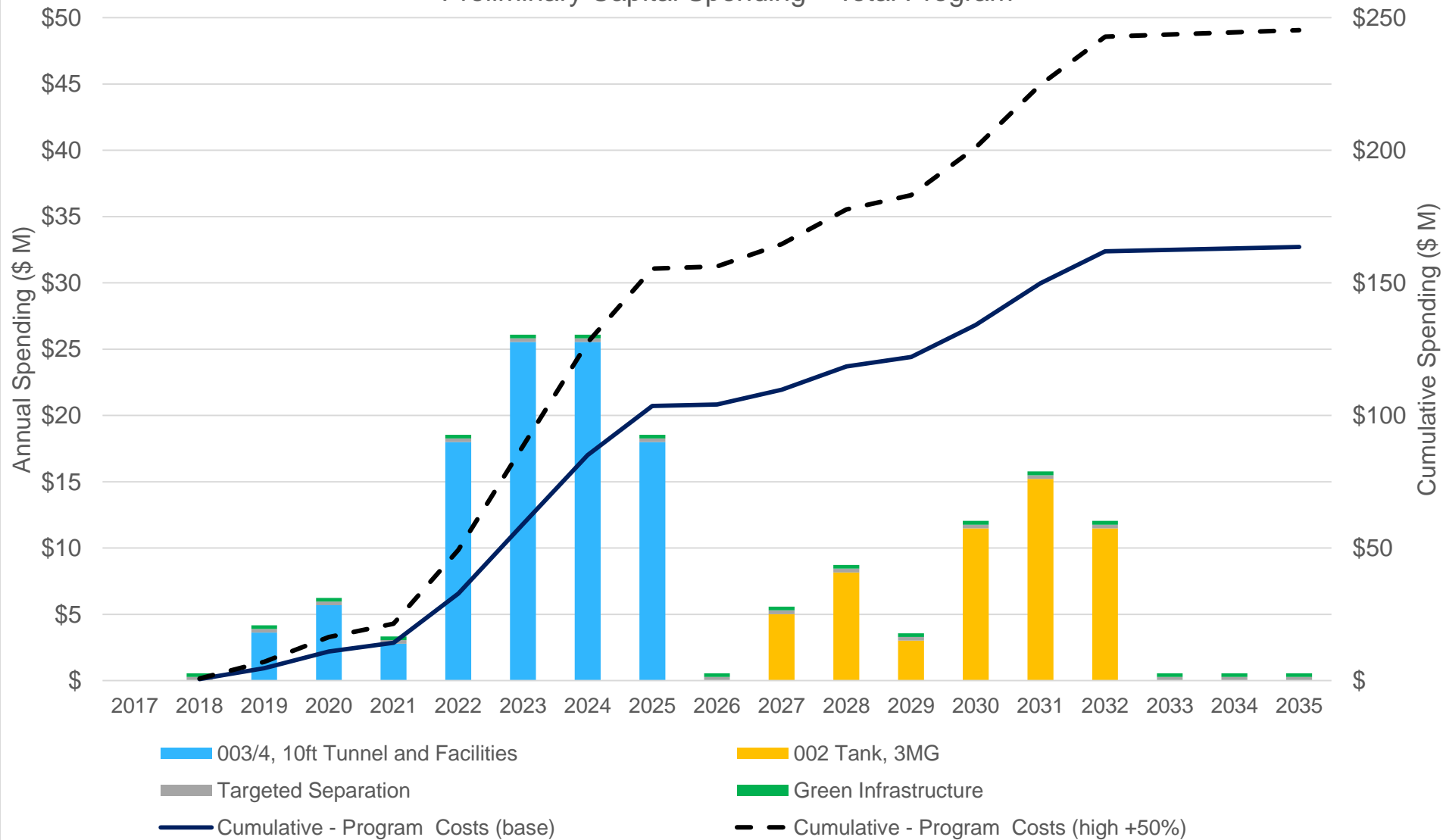
Phasing of LTCPU Projects

- * Major infrastructure projects to be implemented sequentially
- * Sequential implementation allows for
 - Smaller increases to sanitary sewer rates
 - Confirmation of performance of constructed projects
 - Time to assess effectiveness of complementary strategies
 - Green infrastructure
 - Sewer separation

Implementation Schedule



City of Alexandria, LTCPU Preliminary Capital Spending – Total Program



Notes:

1. Includes capital costs for a tunnel for CSO 003/4, a tank for CSO 002, and allowances for GI and targeted separation in 2015 dollars.
2. Costs are preliminary (+50%) and developed to provide context. Additional analysis of the financing and impact on the sewer rate is on-going.

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Post Construction Monitoring



Post Construction Monitoring

- * Flow monitoring conducted at CSO-002, CSO-003, and relocated CSO-004 (2-years)
- * Flow monitoring data used to update and calibrate the CSS model for new infrastructure
- * CSS model will be used to compare the actual performance against the typical year for compliance with the presumption approach (4-6 overflows per year)

Coordination with AlexRenew



Timeline for Approval



Discussion/Comments

